

**PICTETIELLA LECHLEITNERI (PLECOPTERA: PERLODIDAE), A NEW SPECIES FROM MOUNT RAINIER NATIONAL PARK, WASHINGTON, U.S.A.**

BILL P. STARK AND BORIS C. KONDRATIEFF

(BPS) Department of Biology, Box 4045, Mississippi College, Clinton, MS 39058, U.S.A. (e-mail: stark@mc.edu); (BCK) Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO 80523, U.S.A. (e-mail: Boris.Kondratieff@colostate.edu)

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*Abstract.*—*Pictetiella lechleitneri*, new species, is described from a male, female, and nymphal specimen collected in Mt. Rainier National Park, Washington, U.S.A. The new species is compared with *P. expansa* (Banks), the only other Nearctic species of *Pictetiella* Illies.

*Key Words:* U.S.A., Washington, Mount Rainier National Park, stonefly, Perlodidae, *Pictetiella*

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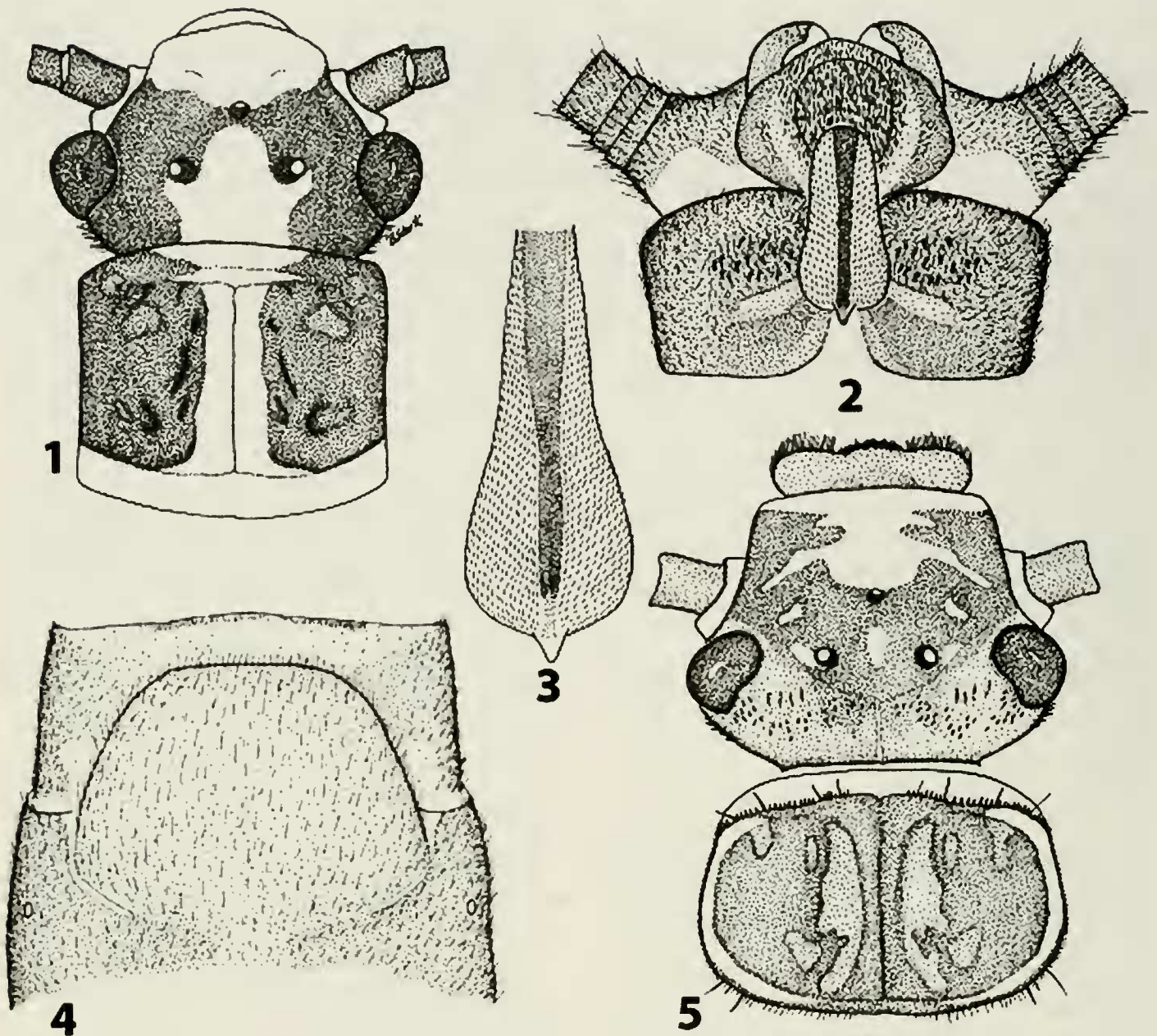
*Pictetiella* was proposed by Illies (1966) as a replacement name for *Pictetia* (Banks 1947), when the latter was found to be a secondary homonym. The genus was thought to be monotypic and endemic to the U.S. Rocky Mountains until Zwick and Levanidova (in Zwick et al. 1971), and Zhiltzova (in Levanidova and Zhiltzova 1976), described the Asian species, *P. asiatica* Zwick and Levanidova and *P. zwicki* Zhiltzova. The Nearctic species, *P. expansa* (Banks), remained poorly known until Baumann (1973) redescribed the species and clarified its nomenclature. This species is now known from scattered localities in Colorado, Idaho, Montana, Utah, and Wyoming (Baumann et al. 1977), but its full distribution is probably under reported due to its late summer adult emergence. Recently, one of us (BCK) and a colleague, Jason P. Schmidt, collected nymphs of a second Nearctic *Pictetiella* from Mount Rainier National Park, Washington, and reared a single male and female described below.

***Pictetiella lechleitneri* Stark and Kondratieff, new species**  
(Figs. 1–9)

*Types.*—Holotype ♂ (reared) from Washington, Pierce Co., Carbon River at Carbon River entrance, Mount Rainier National Park, 12 July 2003 (emerged 21 July), B.C. Kondratieff & J. Schmidt; same data 1 ♀ allotype (reared). Deposited in the National Museum of Natural History, Smithsonian Institution, Washington, DC.

*Additional material.*—1 nymph collected with the holotype and allotype.

*Adult habitus.*—Submental gills obscure. General color dark brown to black patterned with yellow. Head black over posterior region but with trilobed yellow patch covering occiput mesally and extending into ocellar triangle (Fig. 1); black patch covering area lateral to mesal yellow to antennal bases and terminating at anterior ocellus; anterior frons and clypeus yellow. Pronotum with a broad mesal yellow band and scattered dark rugosities and pale areas



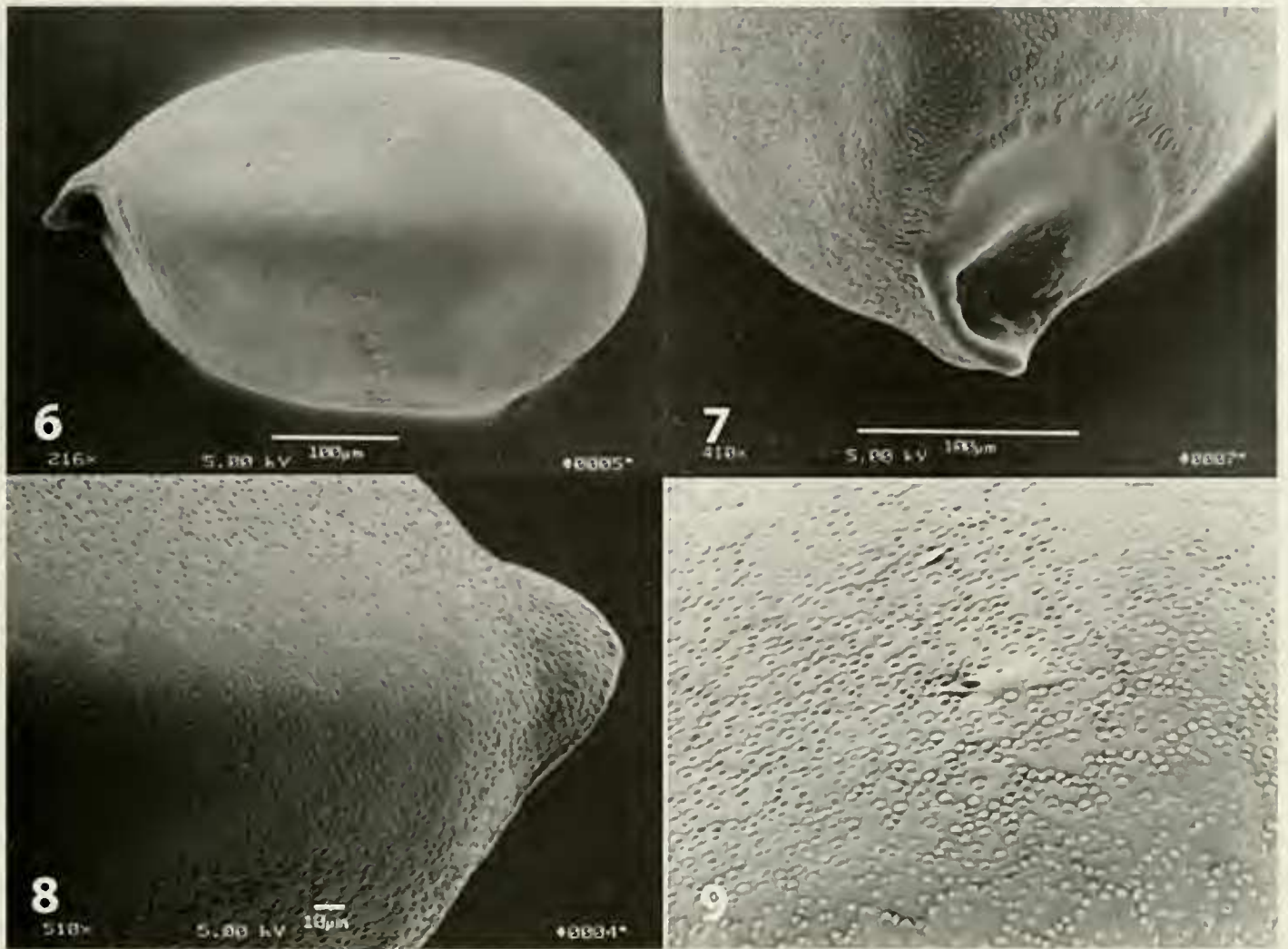
Figs. 1-5. *Pictetiella lechleimeri*. 1, Adult head and pronotum. 2, Male terminalia, dorsal. 3, Epiproct, dorsal. 4, Female subgenital plate. 5, Nymphal head and pronotum.

on disc. Mesosternum with dark brown transverse band covering basisternum and additional brown pigment lining stem and Y-arms and partially filling area between furcal pits; mesosternal grooves typical of genus. Wing membrane transparent, veins dark brown but paler in costal region. Femora banded; dark brown in a dorsomesal patch which expands on anterior surface to femoral base; yellow patches occur distally and on dorsobasal surface. Tibiae and tarsi dark brown.

Male.—Macropterous. Forewing length 16 mm. Abdominal sterna dark brown but with broad yellow U-shaped, posteromesal

patches on sterna 5-9; patches on sterna 7-8 large, covering much of segment; sterna 5-8 with small mesal lobes, that on segment 7 largest. Epiproct outline broad near apex and with a small mesoapical nipple-like process (Figs. 2-3); dorsal and ventral surfaces mostly membranous but covered with densely packed, backward directed, small sharp spines; dorsal sclerite wide at base and tapered to base of apical nipple, becoming less distinct near apex; ventral sclerite extends for  $\frac{2}{3}$  of epiproct length, unarmed. Cowl of epiproct covered with dense pile of fine setae; paragenital plates sclerotized, lateral stylets absent (Fig. 2).





Figs. 6–9. *Pictetiella lechleimeri*. SEM micrographs of eggs. 6, Entire egg. 7, Lateral view of lid. 8, Dorsal view of lid. 9, Chorionic detail with micropyle.

Hemiterga broadly rounded and sparsely armed with short, triangular sensilla basiconica.

Female (specimen with unexpanded wings).—Subgenital plate large and broadly rounded; apex almost as wide as base (Fig. 4). Sternum 9 essentially bare in mesal field, but with an irregular marginal row of short bristles.

Egg.—Crudely three sided but somewhat turtle shaped with collar covered by lid (Figs. 6–9); chorion smooth on ventral side surrounding collar but granular over rest of surface (Figs. 6–9). Axillary lateral ridges and cross poorly defined. Micropyles in irregular equatorial rows; micropylar orifices oval and set on smooth linear ridges (Fig. 9).

Nymph (male).—Preemergent body length 17 mm. Submental gills slightly longer than basal diameter. General color

brown patterned with yellow. Head mostly pale on occiput and in a patch forward of median ocellus (Fig. 5); pronotum mostly brown with irregular pale areas scattered on disc. Abdominal terga 2–10 with large paired pale spots, narrowly separated by median brown band; posterior fringe includes several long setae and mixed short thick ones. Femora banded with narrow brown median band. Mandibles typical of genus, lacinia with a pair of prominent bristles near base of secondary tooth and an incomplete row of minor setae on basal third of margin.

Etymology.—The patronym honors Dr. Richard A. Lechleitner, Mount Rainier National Park, Washington. Rich has provided generous assistance and guidance in the study of the aquatic insects of Mount Rainier National Park, a remarkable pristine landscape.

Diagnosis.—The epiproct of *P. lechleitneri* (Figs. 2–3) is shorter and broader near the apex than in *P. expansa*, and the color pattern is more striking with conspicuous femoral bands and broad U-shaped posteromesal sternal patches on abdominal segments 5–8. The female subgenital plate structure (Fig. 4) is very similar to *P. expansa*, but the female can probably be separated by the banded femoral character. Eggs are distinctive in collar form. Those of *P. expansa* have the lid expanded into a hoodlike structure (Baumann 1973, figs. E–H), that is much smaller in *P. lechleitneri*. In addition, the ventral concavity around the collar orifice is completely smooth in the new species (Fig. 7), but has a cluster of irregular ridges in *P. expansa*. The nymph differs from *P. expansa* most conspicuously by the paired pale tergal patches on abdominal segments 2–10.

Discussion.—Kondratieff and Lechleitner (2002) listed 82 species of stoneflies from Mount Rainier National Park, but no specimens of *Pictetiella* were available for study despite relatively intensive collecting of adult Plecoptera. Typically, *Pictetiella* emerges late in the season, often as late as October (Baumann and Gaufin 1969), and adults are difficult to find in the field. Recent collecting of immature aquatic insects in July revealed a striking perlodine nymph occurring in the Carbon River, a large drainage on the west side of the Park. Despite much effort only a few nymphs were collected and returned to Colorado State University for rearing.

Other perlodine stoneflies collected and reared with *P. lechleitneri* included *Megarctys irregularis* (Banks) and *Kogotus nomus* (Needham and Claassen), with the former being especially abundant.

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#### LITERATURE CITED

- Banks, N. 1947. Some characters in the Perlidae. *Psyche* 54: 266–291.
- Baumann, R. W. 1973. Studies on Utah stoneflies (Plecoptera). *Great Basin Naturalist* 33: 91–108.
- Baumann, R. W. and A. R. Gaufin. 1969. The stoneflies of the Wasatch Mountains. *Proceedings of the Utah Academy of Sciences* 46: 106–113.
- Baumann, R. W., A. R. Gaufin, and R. F. Surdick. 1977. The stoneflies (Plecoptera) of the Rocky Mountains. *Memoirs of the American Entomological Society*, Number 31, 208 pp.
- Kondratieff, B. C. and R. A. Lechleitner. 2002. Stoneflies (Plecoptera) of Mount Rainier National Park, Washington. *Western North American Naturalist* 62: 385–404.
- Illies, J. 1966. *Katalog der rezenten Plecoptera. Das Tierreich*, 82. Walter de Gruyter, Berlin, 632 pp.
- Levanidova, I. M. and L. A. Zhiltzova. 1976. Stoneflies of the Chukotka Peninsula. *Freshwater Fauna of the Chukotka Peninsula. Trudy Biologo-podsvennogo Instituta* 368(139): 15–37.
- Zwick, P., I. M. Levanidova, and L. A. Zhiltzova. 1971. On the fauna of Plecoptera from the Soviet Far East. *Entomologicheskoe Obozrenie* 50: 849–869.